

Case 3666**DICROGLOSSIDAE Dubois, 1987 (Amphibia, Anura): proposed conservation**

Annemarie Ohler

Muséum National d'Histoire Naturelle, Département Systématique et Evolution, UMR7205 ISYEB, CP 30, 25 rue Cuvier, 75005 Paris, France (e-mail: ohler@mnhn.fr)

A. A. Thasun Amarasinghe

Research Center for Climate Change, University of Indonesia, Gd. PAU Lt. 8.5, Kampus UI, Depok 16424, Indonesia

Franco Andreone

Museo Regionale di Scienze Naturali, Via G. Giolitti, 36, 10123 Torino, Italy

Aaron Bauer

Department of Biology, Villanova University, 800 Lancaster Avenue, Villanova, Pennsylvania 19085, U.S.A.

Leo Borkin

Department of Herpetology, Zoological Institute, Russian Academy of Sciences, St. Petersburg 199034, Russia

Alan Channing

Biodiversity and Conservation Biology, University of the Western Cape, Private Bag X17, Bellville, 7535, South Africa

Yodchaiy Chuaynkern

Department of Biology, Faculty of Science, Khon Kaen University, Muaeng, Khon Kaen, 40002 Thailand

Indraneil Das

Institute of Biodiversity and Environmental Conservation, Universiti Malaysia Sarawak, 94300 Kota Samarahan, Sarawak, Malaysia

Kaushik Deuti

Zoological Survey of India, Amphibia Collections, 27 Jawaharlal Lal Nehru Road, Kolkata 700 016, India

Thierry Frétey

Association Racine, 5 allée des Cygnes, 35750 Saint Maugan, France

Masafumi Matsui

Graduate School of Human and Environmental Studies, Kyoto University, Sakyo, Kyoto 606-8501, Japan

Truong Nguyen

Institute of Ecology and Biological Resources, Vietnam Academy of Science and Technology, 18 Hoang Quoc Viet, Cau Giay, Hanoi, Vietnam

R. Alexander Pyron

Department of Biological Sciences, 2023 G St. NW, Washington, D.C. 20052, U.S.A.

Mark Oliver Rödel

Museum für Naturkunde, Leibniz Institute for Evolution and Biodiversity Science, Invalidenstraße 43, 10115 Berlin, Germany

Gabriel Hoinsoude Segniagbeto

Université de Lomé, Faculté des Sciences, Département de zoologie et de biologie animale, BP 6057 Lomé, Togo

Karthikeyan Vasudevan

Laboratory for Conservation of Endangered Species (LaCONES), Centre for Cellular and Molecular Biology, 162 Pillar, PVNR Expressway, Attapur Ring Road, Hyderguda, Hyderabad 500 048, India

Alain Dubois

Muséum National d'Histoire Naturelle, Département Systématique et Evolution, UMR7205 ISYEB, CP 30, 25 rue Cuvier, 75005 Paris, France

Abstract. The purpose of this application, under Article 81 of the Code, is to conserve the name DICROGLOSSIDAE Dubois, 1987 for a family of frogs. Analysis of the publication where the name DICROGLOSSIDAE was first used (Anderson, 1871) showed that this was an incorrect subsequent spelling of DISCOGLOSSIDAE Günther, 1858 and therefore not an available name. This name would have been made available by Dubois (1987) except that *Dicroglossus* Günther, 1860 was then considered a junior subjective synonym of *Euphlyctis* Fitzinger, 1843 and thus unable to be the type-genus of a new family-group name according to Article 11.7.1.1 of the Code. However, DICROGLOSSIDAE is a widely used family name in the recent taxonomy of amphibians. It includes about 180 species distributed in sub-Saharan Africa and tropical Asia. We therefore ask the International Commission on Zoological Nomenclature to make the name DICROGLOSSINI Dubois, 1987, with the type genus *Dicroglossus* Günther, 1860, available by original designation of Dubois (1987, p. 57); to place the names DICROGLOSSINI Dubois, 1987 and *Dicroglossus* Günther, 1860, on the relevant Official Lists of Names in Zoology; and to place the name 'DICROGLOSSIDAE Anderson, 1871', an incorrect subsequent spelling of DISCOGLOSSIDAE Günther, 1858, on the Index of Invalid and Rejected Family-Group Names in Zoology.

Keywords. Nomenclature; taxonomy; Amphibia; Anura; DICROGLOSSIDAE; *Dicroglossus*; Africa; Asia.

1. Günther (1860, p. 158) described the frog genus *Dicroglossus* from India, with a single species, *Dicroglossus adolfi* Günther, 1860, its type species by monotypy.

2. Boulenger (1882, p. 17) considered *Dicroglossus adolfi* to be a junior subjective synonym of *Rana cyanophlyctis* Schneider, 1799 (p. 137), a synonymy that has been accepted by all recent authors, and confirmed by Ohler & Dubois (2014) after examination of the syntypes of both nominal species.

3. The generic name *Dicroglossus* was considered an invalid junior synonym of *Rana* Linnaeus, 1758 by Boulenger (1882, p. 7). This was followed by all authors until Deckert (1938, p. 138), who resurrected this name for several Asian and African ranid species. He was followed by Laurent (1950) in Africa, Dubois (1974) in Asia (as a subgenus of *Rana*) and a few other authors, until Dubois (1980, p. 158, 1981, p. 238) showed that the name *Euphlyctis* Fitzinger, 1843 (type species by original designation *Rana leschenaultii* Duméril & Bibron, 1841, another junior subjective synonym of *Rana cyanophlyctis*) had priority over *Dicroglossus*. At present, the species concerned is recognized as *Euphlyctis cyanophlyctis* (Schneider, 1799) by many authors (e.g. Frost et al., 2006; Joshy et al., 2009).

4. Anderson (1871a, p. 38) mentioned the family name DICROGLOSSIDAE, without any comment, in a list of specimens of the collections of the Indian Museum of Calcutta (now the Zoological Survey of India, Kolkata). He referred to this family a single species, *Xenophrys monticola* Günther, 1864, which at that time was referred, with its relatives, to the family DISCOGLOSSIDAE Günther, 1858 (e.g. Günther, 1859; Theobald, 1868). He did not mention the nominal species *Dicroglossus adolfi*, and he referred the species *Rana cyanophlyctis* to the family RANIDAE.

5. The name 'DICROGLOSSIDAE Anderson, 1871' was ignored by all authors for more than a century, until it was first mentioned by Dubois (1983, p. 275) and then cited in combination with its 'type-genus' *Dicroglossus* by Dubois (1984, p. 41). In Dubois (1987, p. 57), this family name was applied as valid to a tribe of the family RANIDAE Batsch, 1796, the DICROGLOSSINI, for which a short diagnosis, based on the anatomical works of Deckert (1938) and Clarke (1981), was given.

6. The name DICROGLOSSINI was subsequently upgraded to the rank of subfamily, as DICROGLOSSINAE (Dubois, 1992, pp. 309, 313; Roelants et al., 2004, p. 732), then to the rank of family, as DICROGLOSSIDAE (Frost et al., 2006, p. 241). The taxon in question is currently recognized as valid by most authors as the family DICROGLOSSIDAE Anderson, 1871 (Roelants et al., 2007; Fei et al., 2010, p. 25; Blackburn & Wake, 2011, p. 42; Vitt & Caldwell, 2014, p. 510; Pyron & Wiens, 2011, p. 579; Fei et al., 2012, p. 436). This name has been used as valid for about 30 years and has recently appeared not only in taxonomic works (including in their titles) but also in faunal lists, in texts such as the IUCN Red Lists that often form the basis of national and international legal documents, and in conservation reports (see list of references in Ohler & Dubois, 2014).

7. All these uses of the name DICROGLOSSIDAE or its lower-rank taxa rely on Dubois's (1987) interpretation of DICROGLOSSIDAE Anderson, 1871 as an available family group name, according to Article 12.2.4 of the Code, as having been based on the type-genus *Dicroglossus* Günther, 1860, a then available generic name which was presumably considered valid by Anderson (1871a). However, it should be noted that neither this generic name, nor its type-species *Dicroglossus adolfi*, was mentioned in

either of two contemporaneous works by Anderson (1871a, 1871b). Careful examination of these old texts led Ohler & Dubois (2014) to propose another interpretation and to consider that ‘DICROGLOSSIDAE’ was merely a printing error for ‘DISCOGLOSSIDAE’. As such, according to Article 33.3 of the Code, it is an incorrect subsequent spelling and it does not qualify as an available name. It should therefore not be used as valid in zoological taxonomy.

8. Strictly following the Code in this case would require replacement of the name ‘DICROGLOSSIDAE’ by the earliest available junior synonym for this taxon, i.e. either OCCIDOZYGINAE Fei, Ye & Huang, 1990 if the genus *Occidozyga* is included in the taxon (e.g. Frost et al., 2006; Pyron & Wiens, 2011), or LIMNONECTINI Dubois, 1992 if *Occidozyga* is placed in its sister-taxon (e.g. Roelants et al., 2004; Fei et al., 2010). However, as the name ‘DICROGLOSSIDAE’ has been widely used in recent decades for a well-known taxon including about 180 species, this nomenclatural change would be detrimental to communication among zoologists, and above all, between the communities of biologists and non-biologists. We therefore think this usage should be preserved.

9. The first work in which the name ‘DICROGLOSSIDAE’ was considered valid in zoological taxonomy was that of Dubois (1987). It could be appealing to consider that Dubois (1987), when he first used the name DICROGLOSSINI as valid for a newly erected tribe, mentioning its type-genus *Dicroglossus* and providing a diagnosis for this taxon, had indeed rendered the name available. But this is not possible according to Article 11.7.1.1 of the Code, which states that, to be nomenclaturally available, a new family-series (family-group) name must be ‘formed from the stem of an available generic name [. . .] then used as valid in the new family-group taxon’. As Dubois (1987) had expressly considered *Dicroglossus* as an invalid junior synonym of *Euphlyctis*, this condition is not fulfilled and ‘DICROGLOSSINI Dubois, 1987’ is not available.

10. The International Commission on Zoological Nomenclature is accordingly asked:

- (1) to use its plenary power to provide nomenclatural availability for the name DICROGLOSSINI Dubois, 1987, type-genus *Dicroglossus* Günther, 1860 by original designation of Dubois;
- (2) to place on the Official List of Generic Names in Zoology the name *Dicroglossus* Günther, 1860 (gender: masculine), type species *Dicroglossus adolfi* Günther, 1860 by original monotypy;
- (3) to place on the Official List of Family-Group Names in Zoology the name DICROGLOSSINI Dubois, 1987;
- (4) to place on the Index of Invalid and Rejected Family-Group Names in Zoology the name ‘DICROGLOSSIDAE Anderson, 1871’, an incorrect subsequent spelling of DISCOGLOSSIDAE Günther, 1858.

References

- Anderson, J. 1871a. A list of the reptilian accessions to the Indian Museum, Calcutta, from 1865 to 1870, with a description of some new species. *Journal of Asiatic Society of Bengal*, **40**: 12–39.
- Anderson, J. 1871b. On some Indian reptiles. *Proceedings of the Zoological Society of London*, **1871**: 149–211.
- Blackburn, D.C. & Wake, D.B. 2011. Class Amphibia Gray, 1825. *Zootaxa*, **3148**: 39–55.

- Boulenger, G.A.** 1882. *Catalogue of the Batrachia Salientia s. Ecaudata in the collection of the British Museum*. xvi, 503 p., 30 pls Taylor & Francis, London.
- Clarke, B.T.** 1981. Comparative osteology and evolutionary relationships in the African Raninae (Anura Ranidae). *Monitore Zoologico Italiano*, **15**, *Supplemento*: 285–331.
- Deckert, K.** 1938. Beiträge zur Osteologie und Systematik Ranider Froschlurche. *Sitzungsberichte der Gesellschaft Naturforschender Freunde Berlin*, **1938**: 127–184.
- Dubois, A.** 1974. Liste commentée d'Amphibiens récoltés au Népal. *Bulletin du Muséum National d'Histoire Naturelle*, (3)**213** (Zoologie 143): 341–411.
- Dubois, A.** 1980. L'influence de l'homme sur la répartition des Amphibiens dans l'Himalaya central et occidental. *Comptes Rendus de la Société de Biogéographie*, **55**: 155–178.
- Dubois, A.** 1981. Liste des genres et sous-genres nominaux de Ranoidea (Amphibiens Anoures) du monde, avec identification de leurs espèces-types: conséquences nomenclaturales. *Monitore Zoologico Italiano*, **15**, *Supplemento*: 225–284.
- Dubois, A.** 1983. Classification et nomenclature supragénérique des Amphibiens Anoures. *Bulletin Mensuel de la Société Linnéenne de Lyon*, **52**: 270–276.
- Dubois, A.** 1984. La nomenclature supragénérique des Amphibiens Anoures. *Mémoires du Muséum National d'Histoire Naturelle*, (Série A, Zoologie), **131**: 1–64.
- Dubois, A.** 1987 '1986'. Miscellanea taxinomica batrachologica (I). *Alytes (Paris)*, **5**(1–2): 7–95.
- Dubois, A.** 1992. Notes sur la classification des Ranidae (Amphibiens, Anoures). *Bulletin Mensuel de la Société Linnéenne de Lyon*, **61**: 305–352.
- Fei, L., Ye, C.-Y. & Jiang, J.-P.** 2010. Phylogenetic systematics of Ranidae. *Herpetologica Sinica*, **12**: 1–43.
- Fei, L., Ye, C. & Jiang, J.** 2012. *Colored atlas of Chinese amphibians and their distributions*. 260 pp. Sichuan Publishing House of Science & Technology, Sichuan.
- Frost, D.R., Grant, T., Faivovich, J., Bain, R.H., Haas, A., Haddad, C.F.B., De Sa, R.O., Channing, A., Wilkinson, M., Donnellan, S.C., Raxworthy, C.J., Campbell, J.A., Blotto, B.L., Moler, P., Drewes, R.C., Nussbaum, R.A., Lynch, J.D., Green, D.M. & Wheeler, W.C.** 2006. The amphibian tree of life. *Bulletin of the American Museum of Natural History*, **297**: 1–370.
- Günther, A.** 1859 '1858'. *Catalogue of the Batrachia Salientia in the collection of the British Museum*. xvi, 160 p., 12 pl. Taylor & Francis, London.
- Günther, A.** 1860. Contributions to a knowledge of the Reptiles of the Himalaya mountains. *Proceedings of the Zoological Society*, **1860**: 148–175, pl. XXV–XXVIII.
- Joshy, S.H., Alam, M.S., Kurabayashi, A., Sumida, M. & Kuramoto, M.** 2009. Two new species of the genus *Euphlyctis* (Anura, Ranidae) from southwestern India, revealed by molecular and morphological comparisons. *Alytes (Paris)*, **26**: 97–116.
- Laurent, R.** 1950. Reptiles et Batraciens de la région de Dundo (Angola du Nord-Est). (Première note). *Publicações culturais. Companhia de Diamantes de Angola*, **6**: 7–17.
- Ohler, A. & Dubois, A.** 2014. Is Dicroglossidae Anderson, 1871 (Amphibia, Anura) an available nomen? *Zootaxa*, **3838**: 590–594.
- Pyron, R.A. & Wiens, J.J.** 2011. A large-scale phylogeny of Amphibia including over 2800 species, and a revised classification of extant frogs, salamanders, and caecilians. *Molecular Phylogenetics & Evolution*, **61**: 543–583.
- Roelants, K., Gower, D.J., Wilkinson, M., Loader, S.P., Biju, S.D., Guillaume, K., Moriau, L. & Bossuyt, F.** 2007. Global patterns of diversification in the history of modern amphibians. *Proceedings of the National Academy of Sciences of the United States of America*, **104**: 887–892.
- Roelants, K., Jiang, J.P. & Bossuyt, F.** 2004. Endemic ranid (Amphibia : Anura) genera in southern mountain ranges of the Indian subcontinent represent ancient frog lineages: evidence from molecular data. *Molecular Phylogenetics & Evolution*, **31**: 730–740.
- Schneider, J.G.** 1799. *Historia amphibiorum naturalis et literaria: . . . continens Ranas, Calamitas, Bufones, Salamandras et Hydros in genera et species descriptos notisque suis distinctos*, vol. 1. 264 pp. Fromann, Jena.
- Theobald, W.** 1868. Catalogue of reptiles in the Museum of the Asiatic Society of Bengal. *Journal of the Asiatic Society of Bengal*, **37**, suppl.: vi, 7–88, iii pp., 4 pls.

Vitt, L.J. & Caldwell, J.P. 2014. *Herpetology. An introductory biology of amphibians and reptiles*. xiv, 757 pp. Elsevier, Amsterdam, etc.

Acknowledgement of receipt of this application was published in BZN 71: 146.

Comments on this case are invited for publication (subject to editing) in the *Bulletin*; they should be sent to the I.C.Z.N., Natural History Museum, Cromwell Road, London SW7 5BD, U.K. (e-mail: iczn@nhm.ac.uk).